

Delivering NextGen

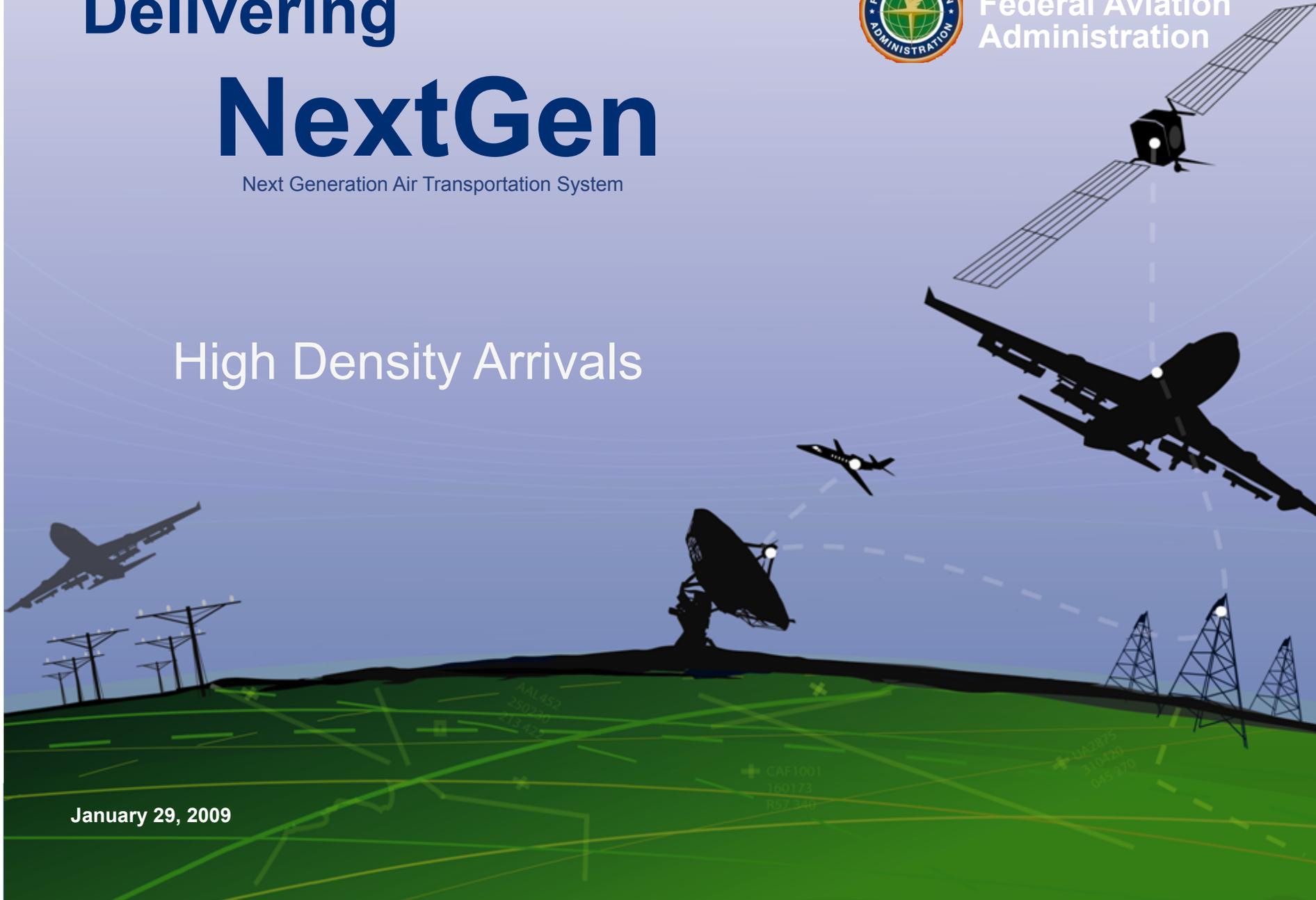
Next Generation Air Transportation System



Federal Aviation
Administration

High Density Arrivals

January 29, 2009



NextGen Mid-Term High Density Arrivals / Departures

Definition

HD focus is to increase the arrivals and departures in areas where demand for runway capacity is high or where there are multiple runways with airspace and taxiing interaction and finally for close proximity airports with potential and airspace/ approach interference.

Capabilities

Use Aircraft Provided Intent Data to Improve Flow and Conflict Resolution [102139]

Improved Operations to Closely Spaced Parallel Runways [102141]

Full Surface Traffic Management with Conformance Monitoring [104206]

Use Data Messaging to Profile Flow and Taxi Assignments [104208]

Initial Surface Traffic Management [104209]

Optimized Runway Assignments [104117]

Integrated Arrival/Departure Airspace Management [104122]

Time Based Metering Using RNAV and RNP Route Assignments [104123]

Operational Objectives

- Increased Capacity Efficiency
- Improved ANSP Productivity
- Reduced Emissions -Per-Flight
- Noise Control

FY09 Activities

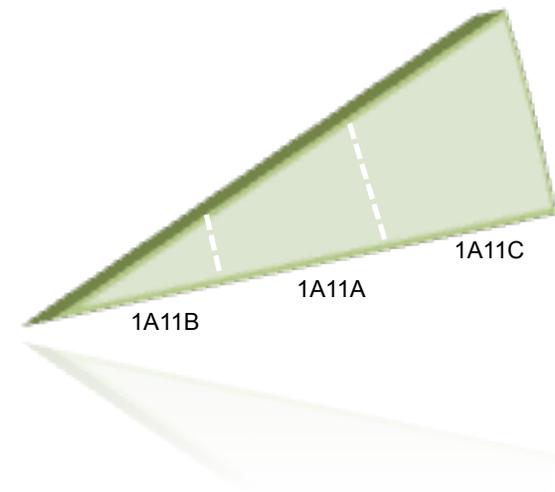
1A11A Surface Tactical Flow

1A11B Surface Conformance Monitoring

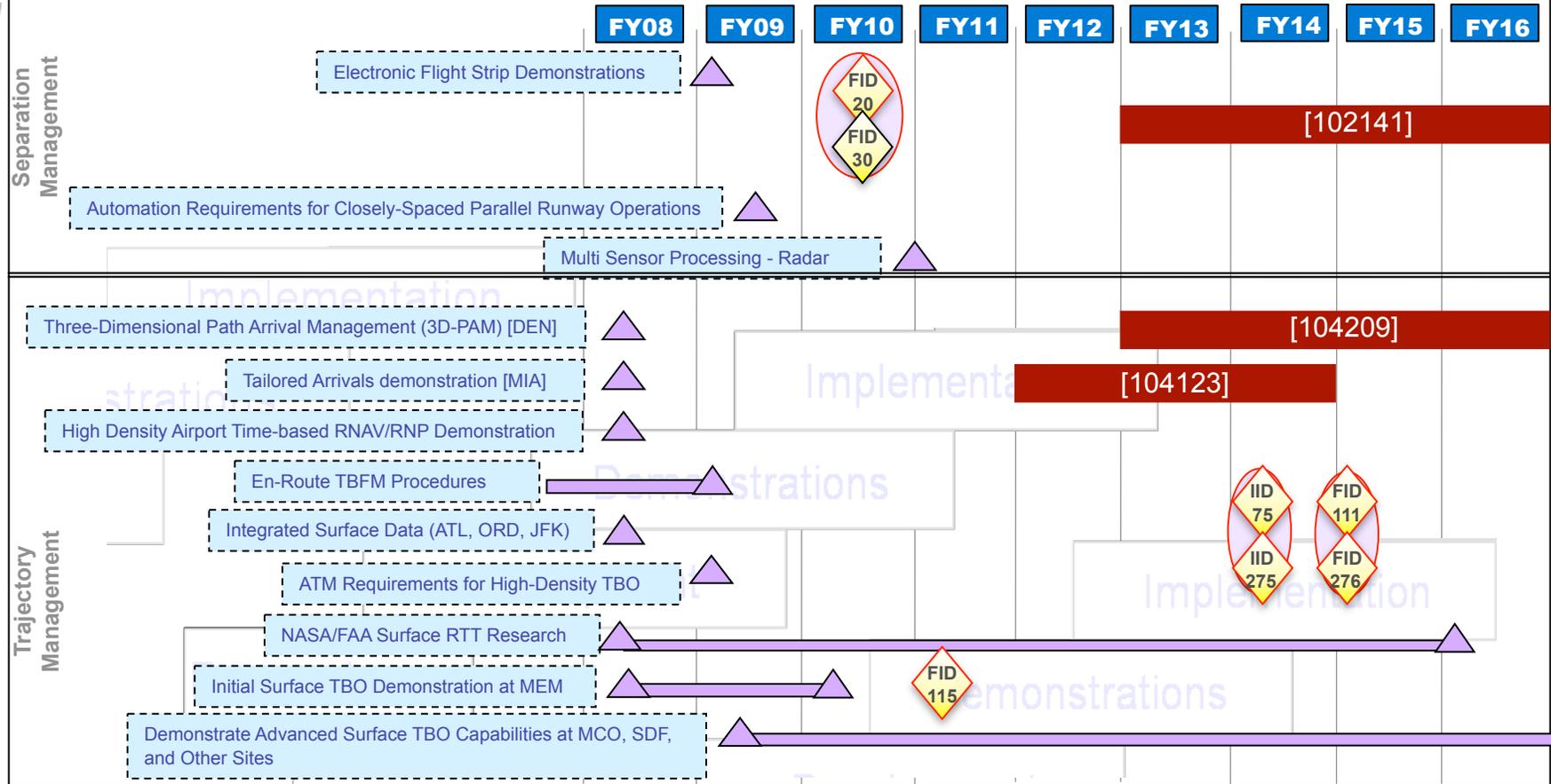
1A11C Arrival Tactical Flow

1A07A High Density Airport Capacity and Efficiency Improvement Project (Demo Funding)

Funding



High-Density Ops Mid Term Automation Roadmap to Improvements

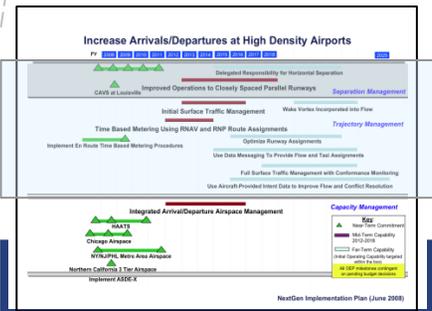


Capability Description

102141 – Improved Operations to Closely Spaced Parallel Runways - Enhanced procedures (including cockpit and ground improvements) will allow improvements in operations to parallel runways. This will reduce the impact to airport/runway throughput in lower visibility conditions.

104209 – Initial Surface Traffic Management - Departures are sequenced and staged to maintain throughput. ANSP automation will use departure-scheduling tools to flow surface traffic at high-density airports. Automation will provide surface sequencing and staging lists for departures and average departure delay (current and predicted).

104123 – Time Based Metering Using RNAV and RNP Route Assignments - RNAV, RNP, and time-based metering provide efficient use of runways and airspace in high-density airport environments. RNAV and RNP provide users with more efficient and consistent arrival and departure routings and fuel-efficient operations. Metering automation will manage the flow of aircraft to meter fixes. This will provide more efficient use of runways and airspace.

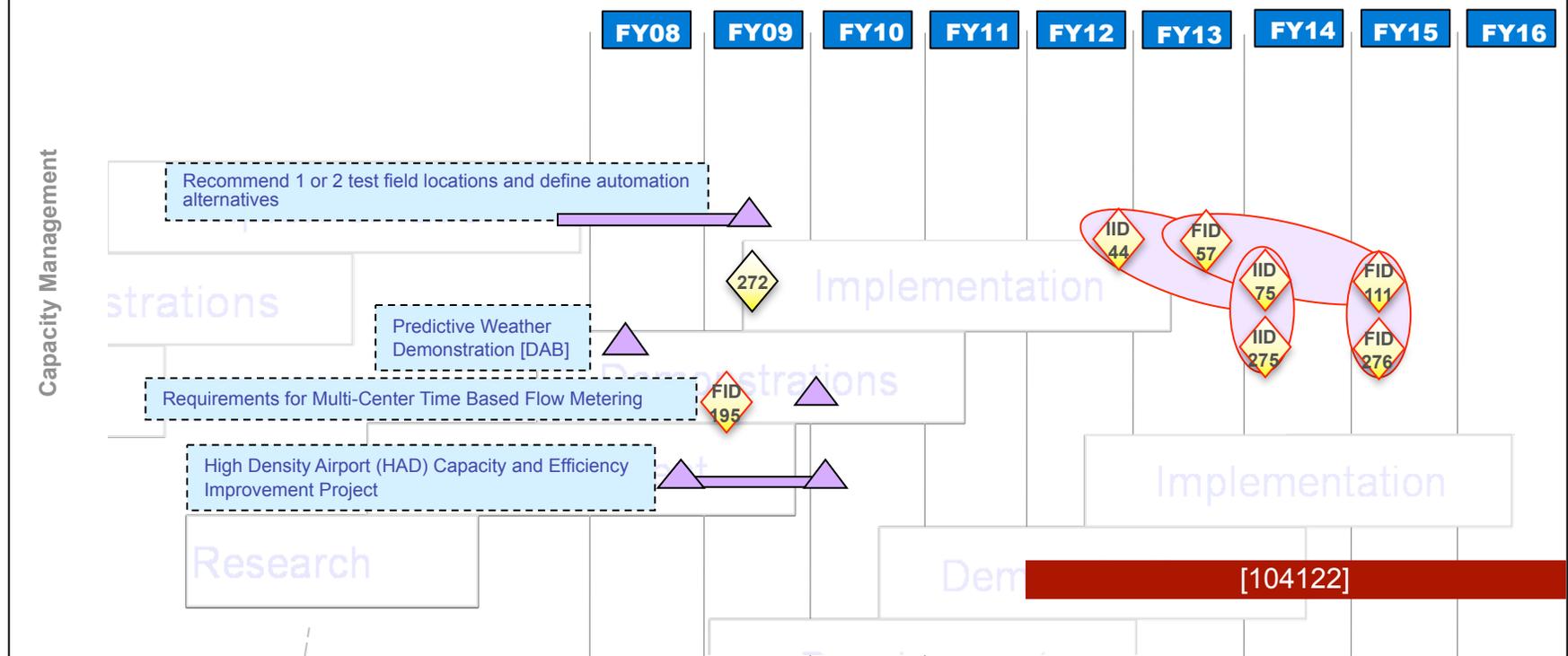


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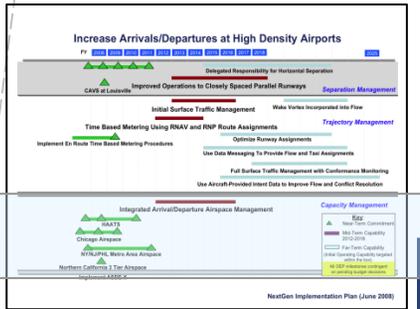
Administration

High Density Ops Mid Term Automation Roadmap to Improvements



Capability Description

104122 – Integrated Arrival/Departure Airspace Management - New airspace design will take advantage of expanded use of terminal procedures and separation standards. This is particularly applicable in major metropolitan areas supporting multiple high-volume airports. This capability will increase aircraft flows and introduce additional routes and flexibility to reduce delays. ANSP decision-support tools currently schedule and stage arrivals and departures based on airport demand, aircraft capabilities, and gate assignments.



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Federal Aviation Administration

NextGen Mid-Term Relevant EA Decisions

| High Density | | |
|----------------------|--|--------------|
| Decision Point (DP#) | Automation Decision Point Description | Target Dates |
| 20 | Approve EFS final investment to migrate towards TFDM functional capability | 2010 |
| 30 | Approve migration of ARMT, DFM and TMA Tower displays to TFDM and/or TFMS WP | 2010 |
| 44 | Time Based Flow Management (TBFM)/Integrated Enterprise Solution (IES) initial investment decision | 2012 |
| 57 | TBFM/IES, FID | 2013 |
| 75 | Approve En Route Automation NextGen Mid-Term Work Package initial investment | 2014 |
| 111 | Approve En Route Automation NextGen Mid-Term Work package final investment | 2015 |
| 115 | Approve Tower Flight Data Manager 2 initial investment | 2011 |
| 195 | Time Based Flow Management (TBFM) FID | 2009 |
| 272 | Recommend 1 or 2 Test Field Locations and Define Automation Alternatives | 2009 |
| 275 | Terminal Automation NextGen Mid-Term Work package Initial investment | 2014 |
| 276 | Terminal Automation NextGen Mid-Term Work package Final investment | 2015 |



NextGen Mid-Term High Density Arrivals/Departures

BLI -1A11A

Trajectory Management – Surface Tactical Flow

| <u>FY09 Milestones</u> | Q1 | Q2 | Q3 | Q4 |
|--|----|----|----|----|
| Demonstrate Surface Traffic Management and Early Surface Trajectory Based Operations Concepts at Memphis | | | | |
| Demonstrate Commercial Surface Application Interface Concept | | | | |
| Demonstrate Collaborative Departure Queue Management Concept | | | | |
| Complete Installation of Surface Trajectory Based Operations Demonstration Prototype at Orlando | | | | |
| Conduct Initial Orlando Surface Trajectory Based Operations Demonstrations | | | | |
| Complete Technical Documentation for Segment 1 Concept Requirements Definition | | | | |
| Begin Segment 1 Investment Analysis Readiness Process | | | | |



NextGen Mid-Term

High Density Arrivals/Departures

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Trajectory Management – Surface Conformance Monitoring

| FY09 Milestones | Q1 | Q2 | Q3 | Q4 |
|---|----|----|----|----|
| Draft Initial CONOPS, Requirements, Standards, and Procedures | | | | |
| Initial Evaluations of Performance Using Prototype 2D Taxi Conformance Algorithms in a HITL | | | | |

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Trajectory Management – Arrival Tactical Flow

| FY09 Milestones | Q1 | Q2 | Q3 | Q4 |
|------------------------------------|----|----|----|----|
| Complete TBFM, FID | | | | |
| Develop Requirements Documentation | | | | |

